

Inter and intra-rater reliability of head posture assessment through observation

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Purpose: The purpose of this study is to assess inter and intra-rater reliability of head posture (HP) assessment through observation.

Relevance: Physiotherapists assess HP as part of the routine clinical examination of patients with neck pain (NP) as recommended by experts in the field¹⁻³. This is because deviations from an 'ideal HP' are claimed to be related to the development and maintenance of NP⁴. Nevertheless, little is known about whether the assessment of HP through observation is a reliable procedure.

Participants: 15 individuals pain-free at the moment of data collection but who reported previous episodes of NP, 1 participant with NP at the moment of data collection and 24 participants that never had NP (aged 20 to 65) were recruited so that images of HP could be captured for subsequent analysis by raters. Raters were 5 Portuguese physiotherapists with at least 3 years of clinical experience (mean=10.4 years) working with patients with NP and that routinely assessed HP through observation in their clinical practice. Sample size (participants and raters) was decided based on the work of Altaye et al⁵.

Methods: This study received ethics approval from the Faculty of Health Research Ethics Sub-Committee at Leeds Metropolitan University (U.K) and from the Service of Bioethics and Medical Ethics (Portugal). Participants were asked to stand in front of 2 cameras in a natural position and frontal and right lateral images were captured. From the images captured, one frame from the sagittal and frontal planes were randomly selected and arranged into Powerpoint slides in a random order. Raters were shown each slide individually and asked to assess 3 features of HP: forward HP, extension of the head and side-flexion using a qualitative four-point-severity scale: 1) normal HP, 2) small deviation, 3) moderate deviation and 4) accentuated deviation. This scale was based on the findings of a previous study conducted by our team on the views and experiences of therapists' use of HP assessment in patients with NP (not yet published). Raters repeated their assessment of HP one week after to gather data for Intra-rater reliability.

Analysis: A K coefficient was used to assess intra-rater reliability. The Kendall W coefficient was used to assess inter-rater reliability.

Results: Initial analysis revealed large variability in HP assessment between the 5 physiotherapists. Intra-rater reliability was poor with K ranges being: FH posture, 0.22 to 0.34; extension, 0.19 to 0.69; side flexion, 0.38 to 0.67. Inter-rater reliability between first and second assessments was also poor with Kendall W ranges being: 0.45 and 0.43 for forward HP, 0.51 and 0.39 for extension and 0.58 for side-flexion.

Conclusions: The assessment of HP through observation was unreliable between raters and within raters on 2 separate occasions.

Implications: These findings challenge the reliability of HP assessment through observation. We recommend that a larger study should be performed to confirm our findings. Whether training would improve the reliability of HP assessment is not known. The findings raise issues related to the value of HP assessment routine in clinical practice.

Keywords: posture, assessment, observations,

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